APPENDIX A

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1. A chimeric peptide comprising a μ [an N-terminal] opioid receptor binding moiety at its N-terminus and [a C-terminal] an agonist Substance P receptor [agonist] binding moiety at its C-terminus, wherein said peptide induces analgesia.

28. The peptide of claim [27] 1, wherein said opioid receptor binding moiety is a μ receptor agonist.

31. The peptide of claim 30 wherein said opioid receptor binding moiety is [selected from the group consisting of peptides] a peptide having any one of SEQ ID Nos: 1-11, or an N-terminal [fragments and] fragment or N-terminal [derivatives] derivative thereof.

32. The peptide of claim 30 wherein said opioid receptor binding moiety is endomorphin 1, endomorphin 2, an N-terminal [fragment] fragment, or an N-terminal derivative thereof.

33. The peptide of claim 32 wherein said opioid receptor binding moiety is [selected from the group consisting of peptides] a peptide having [SEQ ID Nos: 2-3] SEQ ID No: 2 or 3, or an N-terminal [fragments and] fragment or N-terminal [derivatives] derivative thereof.

45. The peptide of claim 1, [24 or 25] wherein said agonist Substance P receptor [agonist] binding moiety comprises Substance P, a C-terminal Substance P [fragment] fragment, or a C-terminal Substance P derivative.

46. The peptide of claim 1, [24 or 25] wherein the –COOH moiety of the C-terminal amino acid residue of said Substance P receptor binding moiety is protected.

49. The peptide of claim 48 wherein said Substance P receptor binding moiety is [selected from the group consisting of peptides] a peptide having any one of SEQ ID Nos: 21, 36 and 38-41, or a C-terminal [N-terminal fragments and] fragment or C-terminal [N-terminal derivatives] derivative thereof.

53. The peptide of claim 52 wherein said Substance P receptor binding moiety is [selected from the group consisting of peptides] a peptide having any one of SEQ ID Nos: 25-27, or a C-terminal [N-terminal fragments and] fragment or C-terminal [N-terminal derivatives] derivative thereof.

56. The peptide of claim 55 wherein said Substance P receptor binding moiety is [selected from the group consisting of peptides] a peptide having any one of SEQ ID Nos: 28-30, or a C-terminal [N-terminal fragments and] fragment or C-terminal [N-terminal derivatives] derivative thereof.

57. The peptide of claim 1 wherein the opioid receptor binding moiety is [selected from the group consisting of] endomorphin 1, endomorphin 2, or an N-terminal [fragments and] fragment or N-terminal [derivatives] derivative thereof; and the Substance P receptor binding moiety is [selected from the group consisting of] Substance P, or a C-terminal [fragments and] fragment or C-terminal [derivatives] derivative thereof.

61. The peptide of claim [60] 1 wherein said peptide comprises at least one D-amino acid.

64. The pharmaceutical composition of claim 62, wherein said peptide induces analgesia when administered to a mammal.

69. The pharmaceutical composition of claim [68] 62, wherein said opioid receptor binding moiety is a μ receptor agonist.

70. The pharmaceutical composition of claim 69 wherein the N-terminal amino acid residue of said opioid receptor binding moiety is a free amine.

71. The pharmaceutical composition of claim 70 wherein the N-terminal amino acid residue of said opioid receptor binding moiety is Tyr.

72. The pharmaceutical composition of claim 71 wherein said opioid receptor binding moiety is [selected from the group consisting of peptides] a peptide having any one of SEQ ID Nos: 1-11, or an N-terminal [fragments and] fragment or N-terminal [derivatives] derivative thereof.

73. The pharmaceutical composition of claim 71 wherein said opioid receptor binding moiety is endomorphin 1, endomorphin 2, an N-terminal [fragment] fragment, or an N-terminal derivative thereof.

74. The pharmaceutical composition of claim 73 wherein said opioid receptor binding moiety is [selected from the group consisting of peptides] a peptide having [SEQ ID Nos: 2-3] SEQ ID No: 2 or 3, or an N-terminal [fragments and] fragment or N-terminal [derivatives] derivative thereof.

86. The pharmaceutical composition of claim 62, [65 or 66] wherein said agonist Substance P receptor [agonist] binding moiety comprises Substance P, a C-terminal Substance P [fragment] fragment, or a C-terminal Substance P derivative.

87. The pharmaceutical composition of claim 62, [65 or 66] wherein the –COOH moiety of the C-terminal amino acid residue of said Substance P receptor binding moiety is protected.

88. The pharmaceutical composition of claim 87 wherein the –COOH moiety of the C-terminal amino acid residue of said Substance P receptor binding moiety is amidated.

89. The pharmaceutical composition of claim 88 wherein the C-terminal amino acid residue of said Substance P receptor binding moiety is Met-NH_2.

90. The pharmaceutical composition of claim 89 wherein said Substance P receptor binding moiety is [selected from the group consisting of peptides] a peptide having any one of SEQ ID Nos: 21, 36 and 38-41, or a C-terminal [N-terminal fragments and] fragment or C-terminal [N-terminal derivatives] derivative thereof.

91. The pharmaceutical composition of claim 87 wherein the –COOH moiety of the C-terminal amino acid residue of said Substance P receptor binding moiety is esterified.

92. The pharmaceutical composition of claim 91 wherein the C-terminal amino acid residue of said Substance P receptor binding moiety is a methyl ester.

93. The pharmaceutical composition of claim 92 wherein the C-terminal amino acid residue of said Substance P receptor binding moiety is Gly-OMe, Lys-COOMe or Arg-COOMe.

94. The pharmaceutical composition of claim 93 wherein said Substance P receptor binding moiety is [selected from the group consisting of peptides] a peptide having any one of SEQ ID Nos: 25-27, or a C-terminal [N-terminal fragments and] fragment or C-terminal [N-terminal derivatives] derivative thereof.

95. The pharmaceutical composition of claim 91 wherein the C-terminal amino acid residue of said Substance P receptor binding moiety is an ethyl ester.

96. The pharmaceutical composition of claim 95 wherein the C-terminal amino acid residue of said Substance P receptor binding moiety is Gly-COOEt, Lys-COOEt or Arg-COOEt.

97. The pharmaceutical composition of claim 96 wherein said Substance P receptor binding moiety is [selected from the group consisting of peptides] a peptide having any one of SEQ ID Nos: 28-30, or a C-terminal [N-terminal fragments and] fragment or C-terminal [N-terminal derivatives] derivative thereof.

98. The pharmaceutical composition of claim 62 wherein the opioid receptor binding moiety is [selected from the group consisting of] endomorphin 1, endomorphin 2, or an N-terminal [fragments and] fragment or N-terminal [derivatives] derivative thereof; and the Substance P receptor binding moiety is [selected from the group consisting of] Substance P, or a C-terminal [fragments and] fragment or C-terminal [derivatives] derivative thereof.

99. The pharmaceutical composition of claim 62 wherein the peptide has SEQ ID No: 42.

100. The pharmaceutical composition of claim 62 wherein the peptide has SEQ ID No: 43.

102. The pharmaceutical composition of claim [101] 62 wherein said peptide comprises at least one D-amino acid.